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Let $W = \text{Span} \left\{ \begin{bmatrix} 2 \\ 1 \\ 1 \end{bmatrix}, \begin{bmatrix} 1 \\ 0 \\ -1 \end{bmatrix} \right\}$

1. Find a basis for W^\perp .

2. Decompose $b = \begin{bmatrix} 1 \\ 1 \\ 1 \end{bmatrix}$ into orthogonal components b_W and b_{W^\perp} .